

### Related Occupations

Prepress workers use artistic skills in their work. These skills are also essential for sign painters, jewelers, decorators, engravers, and graphic artists. In addition to typesetters, other workers who operate machines equipped with keyboards include typists and data entry keyers.

### Sources of Additional Information

Details about apprenticeship and other training programs may be obtained from local employers such as newspapers and printing shops, or from local offices of the State employment service.

For information on careers and training in printing and the graphic arts, write to:

- ✦ PIA—Printing Industries of America, Inc., 100 Daingerfield Rd., Alexandria, VA 22314. Internet: <http://www.printing.org>
- ✦ Education Council of the Graphic Arts Industry, 1899 Preston White Dr., Reston, VA 20191. Internet: <http://www.npes.org>
- ✦ Graphic Communications International Union, 1900 L St. NW., Washington, DC 20036. Internet: <http://www.gciu.org>
- ✦ The Graphic Arts Technical Foundation, 200 Deer Run Rd., Sewickley, PA 15143. Internet: <http://www.gatf.org>

## Printing Press Operators

(O\*NET 89799A, 92512, 92515, 92519, 92524, 92529D, 92529E, 92543, and 92549)

### Significant Points

- Most are trained informally on the job while working as assistants or helpers; basic computer skills are necessary for operators of newer presses.
- Employment growth will be slowed by the increasing use of new, more efficient computerized printing presses.
- Jobseekers are likely to face keen competition.

### Nature of the Work

Printing press operators prepare, operate, and maintain the printing presses in a pressroom. Duties of press operators vary according to the type of press they operate—offset lithography, gravure, flexography, screen printing, or letterpress. Offset lithography, which transfers an inked impression from a rubber-covered cylinder to paper or other material, is the dominant printing process. With gravure, the recesses on an etched plate or cylinder are inked and pressed to paper. Flexography is a form of rotary printing in which ink is applied to the surface by a flexible rubber printing plate with a raised image area. Gravure and flexography should increase in use, but letterpress, in which an inked, raised surface is pressed against paper, will be phased out. In addition to the major printing processes, plateless or nonimpact processes are coming into general use. Plateless processes—including electronic, electrostatic, and ink-jet printing—are used for copying, duplicating, and document and specialty printing, usually by quick and in-house printing shops.

To prepare presses for printing, press operators install and adjust the printing plate, adjust pressure, ink the presses, load paper, and adjust the press to the paper size. Press operators ensure that paper and ink meet specifications, and adjust margins and the flow of ink to the inking rollers accordingly. They then feed paper through the press cylinders and adjust feed and tension controls.

While printing presses are running, press operators monitor their operation and keep the paper feeders well stocked. They make adjustments to correct uneven ink distribution, speed, and temperatures in the drying chamber, if the press has one. If paper jams or tears and the press stops, which can happen with some offset presses, operators quickly correct the problem to minimize downtime. Similarly, operators working with other high-speed presses constantly look for problems, making

quick corrections to avoid expensive losses of paper and ink. Throughout the run, operators occasionally pull sheets to check for any printing imperfections.

In most shops, press operators also perform preventive maintenance. They oil and clean the presses and make minor repairs.

Press operators' jobs differ from one shop to another because of differences in the kinds and sizes of presses. Small commercial shops are operated by one person and tend to have relatively small presses, which print only one or two colors at a time. Operators who work with large presses have assistants and helpers. Large newspaper, magazine, and book printers use giant "in-line web" presses that require a crew of several press operators and press assistants. These presses are fed paper in big rolls, called "webs," up to 50 inches or more in width. Presses print the paper on both sides; trim, assemble, score, and fold the pages; and count the finished sections as they come off the press.

Most plants have or will soon have installed printing presses with computers and sophisticated instruments to control press operations, making it possible to set up for jobs in less time. Computers allow press operators to perform many of their tasks electronically. With this equipment, press operators monitor the printing process on a control panel or computer monitor, which allows them to adjust the press electronically.

### Working Conditions

Operating a press can be physically and mentally demanding, and sometimes tedious. Press operators are on their feet most of the time. Often, operators work under pressure to meet deadlines. Most printing presses are capable of high printing speeds, and adjustments must be made quickly to avoid waste. Pressrooms are noisy, and workers in certain areas wear ear protectors. Working with press machinery can be hazardous, but accidents can be avoided when safe work practices are observed. The threat of accidents is less with newer computerized presses because operators make most adjustments from a control panel. Many press operators work evening, night, and overtime shifts.

### Employment

Press operators held about 253,000 jobs in 1998. Employment was distributed as follows:

Printing press machine setters and operators .....	142,000
Offset lithographic press operators .....	63,000
Screen printing machine setters and setup operators .....	28,000
Letterpress operators .....	10,000
All other printing press setters and set-up operators .....	9,500

Most press operator jobs were in newspaper plants or in firms handling commercial or business printing. Commercial printing firms print newspaper inserts, catalogs, pamphlets, and the advertisements found in mailboxes, and business form establishments print items such as business cards, sales receipts, and paper used in computers. Additional jobs were in the "in-plant" section of organizations and businesses that do their own printing—such as banks, insurance companies, and government agencies.

The printing and publishing industry is one of the most geographically dispersed in the United States, and press operators can find jobs throughout the country. However, jobs are concentrated in large printing centers such as New York, Los Angeles, Chicago, Philadelphia, Washington, DC, and Dallas.

### Training, Other Qualifications, and Advancement

Although completion of a formal apprenticeship or a postsecondary program in printing equipment operation continue to be the best ways to learn the trade, most printing press operators are trained informally on the job while working as assistants or helpers to experienced operators. Beginning press operators load, unload, and clean presses. With time, they move up to operating one-color sheet-fed presses and eventually advance to multicolor presses. Operators are likely to gain experience on many kinds of printing presses during the course of their career.



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Apprenticeships for press operators in commercial shops take 4 years. In addition to on-the-job instruction, apprenticeships include related classroom or correspondence school courses. Once the dominant method for preparing for this occupation, apprenticeships are becoming less prevalent.

In contrast, formal postsecondary programs in printing equipment operation offered by technical and trade schools and community colleges are growing in importance. Some postsecondary school programs require 2 years of study and award an associate degree, but most programs can be completed in 1 year or less. Postsecondary courses in printing are increasingly important because they provide the theoretical knowledge needed to operate advanced equipment.

Persons who wish to become printing press operators need mechanical aptitude to make press adjustments and repairs. Oral and writing skills are also required. Operators should possess the mathematical skills necessary to compute percentages, weights, and measures, and to calculate the amount of ink and paper needed to do a job. Because of technical developments in the printing industry, courses in chemistry, electronics, color theory, and physics are helpful.

Technological changes have had a tremendous effect on the skills needed by press operators. New presses now require operators to possess basic computer skills. Even experienced operators periodically receive retraining and skill updating. For example, printing plants that change from sheetfed offset presses to weboffset presses have to retrain the entire press crew because skill requirements for the two types of presses are different. Weboffset presses, with their faster operating speeds, require faster decisions, monitoring of more variables, and greater physical effort. In the future, workers are expected to need to retrain several times during their career.

Press operators may advance in pay and responsibility by working on a more complex printing press. Through experience and demonstrated ability, for example, a one-color sheetfed press operator may become a four-color sheetfed press operator. Others may advance to pressroom supervisor and become responsible for the entire press crew.

### Job Outlook

Persons seeking jobs as printing press operators are likely to face keen competition from experienced operators and prepress workers who have been displaced by new technology, particularly those who have completed retraining programs. Opportunities to become printing press operators are likely to be best for persons who qualify for formal apprenticeship training or who complete postsecondary training programs.

Employment of press operators is expected to grow little through 2008. Although demand for printed materials will grow, employment growth will be slowed by the increased use of new, more efficient computerized printing presses. However, employment growth will vary among press operator jobs. Employment of screen printing machine setters and set-up operators and printing press machine setters, operators, and tenders will increase, while employment of offset lithographic and letterpress operators will decline sharply. Most job openings will result from the need to replace operators who retire or leave the occupation.

Most new jobs will result from expansion of the printing industry as demand for printed material increases in response to demographic trends, U.S. expansion into foreign markets, and growing use of direct mail by advertisers. Demand for books and magazines will increase as school enrollments rise, and as substantial growth in the middle-aged and older population spurs adult education and leisure reading. Additional growth should stem from increased foreign demand for domestic trade publications, professional and scientific works, and mass-market books such as paperbacks.

Continued employment in commercial printing will be spurred by increased expenditures for print advertising materials to be mailed directly to prospective customers. New market research techniques are leading advertisers to increase spending on messages targeted to specific audiences, and should continue to require the printing of a wide variety of newspaper inserts, catalogs, direct mail enclosures, and other kinds of print advertising.

Other printing, such as newspapers, books, and greeting cards, will also provide jobs. Experienced press operators will fill most of these jobs because many employers are under severe pressure to meet deadlines and have limited time to train new employees.

### Earnings

The basic wage rate for a press operator depends on the type of press being run and the geographic area in which the work is located. Workers covered by union contracts usually had higher earnings. The following tabulation shows the range of median hourly earnings of various press operators for 1998.

Offset lithographic press operators .....	\$14.91
Letterpress operators .....	13.76
All other printing press setters and set-up operators .....	13.33
Printing press machine setters, operators and tenders .....	12.51
Screen printing machine setters and set-up operators .....	9.08

### Related Occupations

Other workers who set up and operate production machinery include papermaking, shoemaking, bindery, and various precision machine operators.

### Sources of Additional Information

Details about apprenticeships and other training opportunities may be obtained from local employers such as newspapers and printing shops, local offices of the Graphic Communications International Union, local affiliates of Printing Industries of America, or local offices of the State employment service.

For general information about press operators, write to:

✉ Graphic Communications International Union, 1900 L St. NW., Washington, DC 20036. Internet: <http://www.gciu.org>

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